Predicting accounting students' intentions to engage in software and music piracy

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Abstract

The purpose of this study is to investigate the salient factors that influence accounting students to engage in software and music piracy. This study uses the theory of reasoned action (TRA) and the theory of planned behavior (TPB), and extends these models to incorporate other variables (such as moral obligation and perceived prosecution risk) to predict individuals' behavioral intentions. Specifically, we hypothesize that attitudes toward the behavior, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk influence intentions to engage in software and music piracy. Data were obtained from 237 university accounting students in a Caribbean university to assess the influence of the components of the theories and other modified and extended models. Findings reveal that attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk significantly influence intentions to engage in software and music piracy. These findings lend full support to the hypothesized relationships in our extended theory of planned behavior.

Keywords: Attitudes; subjective norms; perceived behavioral control; moral obligation; perceived prosecution risk; software privacy; music privacy.

Introduction [1]

In recent decades, software and music piracy have attracted significant attention from the respective industries. This has been in part due to underperforming sales, which has been attributed to unauthorized downloads and the proliferation of CD burning in flagrant breach of copyright laws. Under the law, a copyright is a right given against the copying of defined types of cultural, informational and entertainment productions. Collectively, these types of productions have been termed "literary and artistic works".

Recent studies on software and music piracy have found that in addition to the legal considerations, it encompasses many ethical dimensions (Al-Rafee and Cronan, 2006). Thus, researchers have devised many different models to understand software and music piracy, focusing on software and music piracy behavior and the factors that influence such behavior. Some of the models used in previous studies include: the theory of reasoned action (TRA) (Ajzen and Fishbein, 1977), the theory of planned behavior (TPB) (Ajzen, 1991), the theory of interpersonal behavior (TIB) (Triandis, 1980) and the theory of trying (Bagozzi and Warshaw, 1990).

In addition, previous works have explored deterrents or prevention tactics in an effort to stop or reduce the incidence of software and music piracy. However, it has been noted that it may be more beneficial to investigate the factors that influence software and music piracy in an attempt to reduce the pirating of software and music as opposed to simply investigating deterrent tactics. This approach is especially important, since it has been suggested that individuals do not view software and music piracy as a crime or an ethical issue (Al-Rafee and Cronan, 2006).

[1] We would like to thank the Editor and the anonymous reviewers for their constructive and helpful comments.

This paper investigates the factors influencing accounting students of a particular Caribbean university to engage in software and music piracy. Further, this work focuses on factors that encourage such behavior. Moreover, this study uses TPB, which has in the past been successfully used to study individuals' behavior. TPB by Ajzen (1991) is a modification of TRA and incorporates perceived behavioral control. Specifically, this study tests the influence of several independent variables (attitudes toward the behavior, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk) on accounting students' intentions to pirate software and music.

Most of the research on ethics in the Caribbean has been done by Alleyne and colleagues (Alleyne et al, 2006; Alleyne et al., 2010; Alleyne and Phillips, 2011; Alleyne et al., 2014). The Caribbean region represents an important special case within which to study this phenomenon. This is because previous studies have shown that there is a relationship between high software and music piracy rates and economies with poor economic levels (Marron and Steel, 2002). Oksanen and Valimaki (2006) argue that developing countries do not have many incentives to enforce copyright, given their weak national cultural industries. Guernsey (1995) suggests that current policy on using duress to impose copyright legislation, which is highly influenced by Western thinking, may be ethically questionable in areas where the concept of copyright infringement is culturally alien. Furthermore, studying the predictors of software and music piracy in the Caribbean is important since software and music piracy are considered global issues.

The remainder of this paper is presented as follows. Firstly, the related literature is reviewed and the study's hypotheses are developed. Secondly, details of the data and research

design are presented. Thirdly, the empirical results are highlighted. Finally, the empirical results are discussed, conclusions drawn and limitations and directions for future research identified.

Literature Review

Definitions and Interpretations

According to Tenisci and Alexander (1992), there are two different versions of pirates that come to mind in today's world. Tenisci and Alexander (1992) use the following analogies: a) the first is of a latter-day swashbuckling ruffian who captures cargo ships and steals the riches and wealth aboard for himself; and b) the second is of a person who copies software and/or music from a source to their own personal computer (PC), without purchasing it from a legal vendor. Indeed, software and music piracy have been the subject of great attention in the past decade. Moreover, of all the issues involving computer ethics, the illegal acquisition of software and music, known as software and music piracy have been the topic of great concern for their respective industries (i.e. the software and music industries). We define software piracy as unauthorized or illegal downloading or copying of computer programs; while music piracy entails the copying and/or distribution of a piece of music without the copyright holder's consent (Swinyard et al., 1990; Glass and Wood, 1996; Sims et al. 1996; Gupta et al., 2004).[2]

The computer has become an integral part of our daily routine and the role of this technology in facilitating the proliferation of software and music piracy can not be overstated. The ever increasing power of technology coupled with the decreasing cost of computation has promoted widespread use and ownership of personal computers around the globe. Although beneficial, several problems have accompanied the explosive growth of this technology, such as

[2] In this paper, we use the term "software piracy" to mean downloading of unauthorized software copies. Thus, the two terms are used interchangeably throughout the paper.

unauthorized use, duplication, distribution or sale of commercially available software, music and other literary and artistic works (Moores and Dhillon, 2000).

Attitudes to software and music piracy have been the focus of several studies (Christoph et al., 1987; Siegfried, 2004). For instance, Christoph et al. (1987) find that prior computer knowledge has no significant difference in students' attitudes towards piracy. Siegfried (2004) finds that there have been few, if any, changes to students' opinions regarding the unauthorized duplication of copyrighted materials. Moreover, Siegfried (2004) reports students generally feel that copying commercial software and downloading music from the internet is acceptable.

Furthermore, it has been noted that when investigating students' behavior toward software piracy, one should also consider students' attitudes toward music piracy (Graziano and Rainie, 2001). This is because music piracy has become one of the fastest growing activities on the internet. Thus, it is of interest to determine if students perceive a difference between the two (Graziano and Rainie, 2001).

Ethics and Theoretical Framework

Information Technology (IT) has become a major part in the functioning of everyday professional and personal activities. Accordingly, ethical standards are still evolving for IT, given the ease of access to copyright software and music, and the related use of these digital materials. Bommer et al. (1987) state that ethical or unethical behavior takes place as a result of an ethical dilemma. Kreie and Cronan (2000) find that people rely heavily on their personal values when deciding what ethical or unethical behavior is. When looking at ethical theory, one can start with the theory of reasoned action (TRA) and the theory of planned behavior (TPB). TRA proposes that behavioral intentions are influenced by attitudes and subjective norms (Ajzen

and Fishbein, 1977). According to TRA, personal and social factors influence intentions towards using pirated software (Phau and Ng, 2010).

The theory of planned behavior (TPB) by Ajzen (1991) is a modification of the theory of reasoned action and incorporates another indirect influence, termed, perceived behavioral control. Perceived behavioral control is an individual's perception on how easily a specific behavior will be performed. Thus, the TPB proposes that individual intention to perform behaviors can be predicted by attitudes toward the behavior, subjective norms and perceived behavioral control. Furthermore, the theory of planned behavior has been applied to ethical situations and is being used in this context to explain the decision to use pirated software and music (Chang, 1998; Leonard and Cronan, 2001). Prior research suggests that many students perceive software and music piracy as acceptable and normative behaviors, thus influencing their engagement in software and music piracy (Solomon and O'Brien, 1990; Taylor and Shim, 1993). Phukan (2005) suggests that the reason people are willing to commit intellectual property violations on the internet is because they do not perceive that there is a real victim of the act. In this study, we add another variable, moral obligation, to the TPB to form the modified theory of planned behavior (MTPB), as proposed by Beck and Ajzen (1991). Finally, based on the literature, we add another predictor, perceived prosecution risk, to the MTPB to form the extended theory of planned behavior (ETPB).

Hypothesis Development

Attitudes toward the behavior

Attitudes refer to one's positive or negative evaluation of performing the behavior (Ajzen, 1991, p.188). Our attitudes are based on our knowledge of a situation and then we assess the situation

as either being positive or negative. Software and music piracy have also been linked to one's lack of awareness and knowledge of copyright legislation. Lau (2003) argues that although licensing agreements are used for software, many persons do not pay attention to them. Lau (2003) also finds that social acceptance of piracy, the cost of original software, poor availability of original software and lack of knowledge were related to lenient attitudes to software piracy. Branscomb (1994) suggests that the licensing agreements are usually printed very small and are at times complicated making them ineffective since most consumers ignore them. Cesareo and Pastore (2014) find that favorable attitudes toward online piracy are negatively related to consumers' willingness to try subscription-based music services. King and Thatcher (2014) report a significant positive relationship between individuals' attitudes to software piracy and levels of moral development. Thus, our first set of hypotheses is as follows:

Hypothesis 1a (H1a): Students' favourable attitudes toward unethical behavior will influence intentions to engage in software piracy.

Hypothesis 1b (H1b): Students' favourable attitudes toward unethical behavior will influence intentions to engage in music piracy.

Subjective Norms

Subjective norms refer to the "perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p.188). In other words, subjective norms may be defined as an individual's perception that people who are most important to him or her (e.g significant others, peers, family, friends and co-workers) approve or disapprove the behavior. The literature highlights a significant relationship between subjective norms and behavioral intentions (Chang, 1998; Leonard and Cronan, 2001). The theory of planned behavior posits that as human beings,

our attitudes and behaviors are shaped by our social environments and as such social factors are paramount in the understanding of software and music piracy. An individual's family and friends may play an important role in piracy behaviors. Previous studies have found support for the influence of subjective norms on intentions to engage in software and music piracy (Higgins et al., 2005; Hsu and Shiue, 2008; Yang and Wang, 2014). Lau (2003) argues that there is a social acceptance of software piracy which promotes or influences lenient attitudes toward piracy behaviors. Hence, the way our social circles view software and music piracy can impact our intention to engage in software and music piracy. Moreover, the social acceptance of software and music piracy, especially in developing countries, is perceived as a major influence of these behaviors. Lau (2003) further argues that the idea that "everybody is doing it" is a common motivator for software and music piracy. Chang (1998) finds that favourableness or unfavourableness towards the behavior is affected by how significant others consider the performance of the behavior. Thus, our second set of hypotheses is as follows:

Hypothesis 2a (H2a): Students' perceptions that subjective norms endorse unethical behavior will influence intentions to engage in software piracy.

Hypothesis 2b (H2b): Students' perceptions that subjective norms endorse unethical behavior will influence intentions to engage in music piracy.

Perceived Behavioral Control

This refers to the perceived ease or difficulty in performing the behavior (Ajzen, 1991, p.188). Thus, perceived behavioral control consists of control and difficulty factors. Chang (1998) argues that an individual's likelihood of engaging in the behavior is contingent on his/her perceptions that he or she has the resources and opportunities required to perform the behavior.

For example, within the IT context, the convenience and ease of pirating software has previously been noted as a potential influence of software piracy (Cheng et al., 1997; Cronan and Al Rafee, 2008). Cheng et al. (1997) highlight this to be a motivating factor in software piracy especially for students. In addition, the high cost of original software has been shown to influence software piracy (Cheng et al., 1997; Lau, 2003; Hsu and Shiue, 2008). Cheng et al. (1997) find that individuals are more willing to use pirated products rather than buying the original products because they are "overpriced". Hsu and Shiue (2008) reveal that the majority of the participants in their study engage in software piracy because of the high cost of software.

Perceived behavioral control has been compared to self-efficacy, which is the belief in one's capability to perform an action (Bandura, 1997). Prior research has found that individuals with low self-control are more likely to engage in digital piracy (Morris and Higgins, 2009; Kim and Kim, 2015). However, there is a stream of research which highlights that individuals with high perceived behavioral control are more likely to engage in digital piracy (Leonard and Cronan, 2001; Phau et al, 2014). Chang (1998) finds that perceived behavioral control is a significant predictor of intention to use illegal software copies. Thus, our third set of hypotheses is as follows:

Hypothesis 3a (H3a): Students' high perceived behavioral control (i.e. perceived ease) in performing the unethical behavior will influence intentions to engage in software piracy.

Hypothesis 3b (H3b): Students' high perceived behavioral control (i.e. perceived ease) in performing the unethical behavior will influence intentions to engage in music piracy.

Moral Obligation

According to Beck and Ajzen (1991), moral obligation refers to the feeling of guilt or the personal obligation to perform or not to perform a behavior. Based on the results of Cronan and Al-Rafee's (2008) study, planned behavioral factors in addition to past piracy behavior and moral obligation are found to influence an individual's intention to pirate material. Prior research suggests that when engaging in unethical behavior, individuals need to consider not only perceived social pressures, but also personal feelings of moral obligation and responsibility (Beck and Ajzen, 1991). Prior studies have shown that moral obligation is a significant predictor of behavioural intentions (Beck and Ajzen, 1991; Connor and Armitage, 1998). Cronan and Al-Rafee (2008) state that given the media exposure regarding the seriousness of digital piracy and public awareness, individuals could form intentions with a moral obligation factor in mind. Prior research have found support for moral obligation as an influential variable affecting the intention to pirate or not pirate in information technology contexts (Leonard and Cronan, 2001; Higgins et al., 2005). Therefore, we argue that persons with high morals and ethical standards may abstain from engaging in software and music piracy (Gupta et al., 2004). Thus, our fourth set of hypotheses is as follows:

Hypothesis 4a (H4a): Students' low moral obligation will influence higher intentions to engage in software piracy.

Hypothesis 4b (H4b): Students' low moral obligation will influence higher intentions to engage in music piracy.

Perceived Prosecution Risk

Perceived prosecution risk refers to an individual's risk tolerance to engage in illegal activities (e.g. software and music piracy). Thus, perceived prosecution risk arises when an individual may be engaged in a situation where there are uncertain outcomes and potential negative consequences of a poor or wrong decision (Bauer, 1960). Within the IT context, the internet provides easy downloading of files and unlimited access to music and software. The downloading of unauthorized music and software files represent infringement of copyright law. Tan (2002, p. 100) argues for the inclusion of perceived prosecution risk as an important variable by stating that "the installation of pirated software is an infringement of copyright law and consumers run the risk of civil action by the copyright owner."

Chiou et al. (2005) find that perceived prosecution risk influences an individual's behavior in music piracy. Furthermore, the literature shows that individuals who may be aware of copyright legislations may still engage in software piracy because they may believe that they are not subject to prosecution risks and related penalties (Hill, 2007; Hsu and Shiue, 2008). Al-Rafee and Cronan (2006) conclude that students hold no fear of being caught for digital piracy. Thus, our fifth set of hypotheses is as follows:

Hypothesis 5a (H5a): Students' lower perceived prosecution risk will influence higher intentions to engage in software piracy.

Hypothesis 5b (H5b): Students' lower perceived prosecution risk will influence higher intentions to engage in music piracy.

The software and music piracy model is represented in Figure 1.

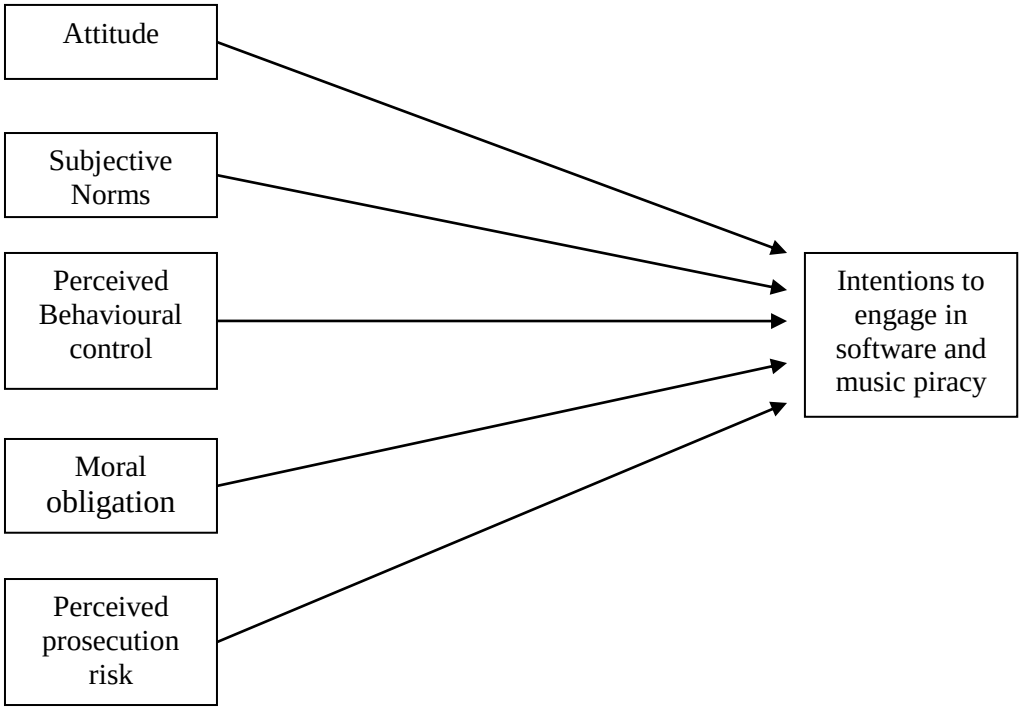

Figure 1: Software and Music Piracy Intention Model

Research Methods

Research Design

The research design consisted of a self-administered questionnaire distributed to undergraduate accounting students in a Caribbean university.

Data collection procedures

The research was conducted in three courses with a purposive sample of undergraduate accounting students in an English-speaking region of the Caribbean. The respondents in this

study were deemed appropriate for sampling, given that accounting was their academic major. The questionnaire was administered during two level II courses and one level III course that are mandatory for all students majoring in accounting. In addition, we chose these courses given that the students would have completed a number of accounting ethics courses (or courses with ethics components), and might have been sensitized to ethical issues. In particular, these students ought to be aware that music and software piracy was unethical, given their exposure to at least 2 information technology courses, which have the issues raised as a key topic.

The survey instrument

The survey questionnaire, which contained demographic variables and the measures of the key variables in the study, is shown in the Appendix.[3]

The students received a questionnaire with a front cover stating that the information they supply would not identify them individually and that the information will be used for academic purposes. The front cover also contained the purpose of the research and definitions for the terms: copyrighted software, software piracy and music piracy. The first part of the questionnaire requested demographic data such as gender, age and number of courses done with ethics component (continuous variable). We distributed 500 questionnaires and received 237 usable responses, resulting in an overall response rate of 47.4%. This response rate compares favorably to past studies in ethical decision-making (Kurland, 1996; Gibson and Frakes, 1997; Flynn, 2001; Buchan, 2005). The sample distribution obtained appeared reasonable and was considered representative of the student body pursuing an accounting career.

[3] Some items in the measures of the variables in the questionnaire were reverse coded to assist in instrument reliability.

Table 1 shows the key characteristics of the sample. The sample comprised 237 accounting students, with 72% being females. The sample was predominantly young, with the average age being approximately 27 years. On average, students were exposed to at least 3 courses with an ethics component. (M = 3.78, SD = 1.12).

Insert Table 1 about here

Measures

The survey questionnaire utilized existing scales from the literature and these scales were adapted to the software and music piracy behavior in this study.

The dependent variable, behavioral intentions (ethical or unethical intentions) to engage in software and music piracy, was tested by asking participants to respond to three statements that were adapted from Madden et al. (1992) and Chang (1998). For example, in terms of software piracy, behavioral intentions were measured using the following 7-point fully anchored scales: "I intend to make unauthorized software copies in the future"; "I will try to make unauthorized software copies in the future;" and "I will make an effort to make unauthorized software copies in the future (extremely improbable-extremely probable)". All items in this scale were averaged to form a composite score for each behavior of engaging in software and music piracy. High scores indicate high intentions to act unethically (that is, being unethical in terms of software and music piracy), while low scores indicate low intentions to act unethically (that is, being ethical). The Cronbach alphas for the behavioral intentions scales were as follows: software piracy (α = .89) and music piracy (α = .94).

Attitudes were measured using four 7-point anchored scales. For example, in terms of software piracy, respondents were presented with the sentence, "Overall, my attitude towards

using unauthorized software copies is" and using the following semantic differentials to assess the attitudes toward the behavior: "unfavourable-favourable", "harmful-beneficial", "foolish-wise", and "bad-good." The scales were adapted from Madden et al. (1992) and Al-Rafee and Cronan (2006). All items in this scale were averaged to form a composite score. In this study, a high score indicates a favorable attitude toward the unethical behavior (i.e music piracy and software piracy), while a lower score indicates an unfavorable attitude toward the unethical behavior. The Cronbach alphas for the attitudes scales were as follows: software piracy ($\alpha = .83$) and music piracy ($\alpha = .81$).

The subjective norms scale, adapted from Al-Rafee and Cronan (2006) and Ajzen (1991), asked respondents whether significant others approve or disapprove the behavior in question. For example, in terms of software piracy, the 3 items used were "Most people who are important to me think I should not use unauthorized software copies" (strongly disagree-strongly agree); "When considering using unauthorized software copies, I wish to do what people who are important to me want me to do" (strongly disagree-strongly agree); "If I use unauthorized software copies, then most people who are important to me would" (disapprove-not care). All questions used 7-point anchored scales. All items in this scale were averaged to form a composite score. High scores indicate perceptions that significant others do endorse the unethical behavior, while low scores indicate perceptions that significant others do not endorse the behavior. The Cronbach alphas for the subjective norms scales were as follows: software piracy ($\alpha = .78$) and music piracy ($\alpha = .80$).

Perceived behavioral control was measured using three items adapted from Chang (1998). For example, in terms of software piracy, the items used were as follows: "I have complete control of making unauthorized software copies"; "For me, to make unauthorized

software copies is easy" and "If I want to, I could easily make unauthorized software copies" (strongly disagree-strongly agree). These items used 7-point fully anchored scales. All items in this scale were averaged to form a composite score. High scores indicate perceived ease in performing unethical behavior, while low scores indicate perceived difficulty. The Cronbach alphas for the perceived behavioral scales were as follows: software piracy ($\alpha = .85$) and music piracy ($\alpha = .78$).

Moral obligation was measured using three items adapted from Beck and Ajzen (1991). In terms of software piracy, the items used 7-point fully anchored scales and asked the participants the following questions: "I would not feel guilty if I use unauthorized software copies (strongly disagree-strongly agree)"; "Using unauthorized software copies goes against my principles (strongly disagree-strongly agree)"; "It would be morally wrong for me to use unauthorized software copies (strongly disagree-strongly agree)". All items in this scale were averaged to form a composite score. High scores indicate high moral obligation, while low scores indicate low moral obligation. The Cronbach alphas for the moral obligation scales were as follows: software piracy ($\alpha = .87$) and music piracy ($\alpha = .84$).

Perceived prosecution risk was adapted from Tan (2002), using a 2-item scale. For example, for software piracy, the items used 7-point fully anchored scales and asked the following questions: "If you have used unauthorized software copies, what is the probability that you will be caught for the infringement of copyright law? (very low – very high)"; You would be arrested for infringement of copyright law if you have used unauthorized software copies (strongly disagree – strongly agree)." All items in this scale were averaged to form a composite score. High scores indicate high perceived prosecution risk, while low scores indicate low

perceived prosecution risk. The Cronbach alphas for the perceived prosecution risk scales were as follows: software piracy ($\alpha = .81$) and music piracy ($\alpha = .76$).

Common method variance

We checked for the existence of common method variance (Podsakoff et al., 2003), using Harman's (1976) single factor test on all variables of interest. The results of principal component factor analysis highlight that all factors load consistently within the various constructs of interest. Thus, the results suggest that common method variance may not have influenced the findings in the study.

Data analysis

Our data analysis is done to test the following:

1) to determine the adequacy of TRA (attitudes and subjective norms) to explain intentions to engage in software and music piracy;
2) to determine whether TPB (attitudes, subjective norms and perceived behavioral control) is a better predictor of intentions to engage in software and music piracy than TRA (Chang, 1998);
3) to determine whether MTPB (attitudes, subjective norms, perceived behavioral control and moral obligation) is a better predictor of intentions to engage in software and music piracy than TRA and TPB;
4) to determine whether ETPB (attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk) is a better predictor of intentions to engage in software and music piracy than MTPB.

As a result, we use hierarchical multiple regression to test the hypotheses.

Results

The relationship of the study's variables

Table 2 shows Pearson's bivariate correlations among the key variables in the study. The results reveal that moderate to strong correlations exist between the independent variables (attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk) and dependent variables (intentions to engage in software and music piracy). For example, the study shows that students are more inclined to engage in software piracy (M = 4.61, SD = 1.75) and music piracy (M = 5.68, SD = 1.77). Table 2 shows that perceived prosecution risk exerts the most influence on behavioral intentions, given the high correlations (r = -.70 and r = -.62). We also note that subjective norms exerts the least influence over students' intentions to engage in music piracy (r = .48) and moral obligation exerts the least influence on intentions to engage in software piracy (r = -.42).

Insert Table 2 about here

Hierarchical regression analyses for intentions to engage in software and music piracy

Hierarchical regression analyses are conducted to test for the predictability of independent variables (attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk) influencing intentions to engage in software and music piracy. We include the demographic variables in the analyses based on their influence in the ethics literature. Preliminary tests for multicollinearity were done using variance inflation factors from the SPSS collinearity statistics. We find that no multicollinearity exists in the data. The demographic variables (gender, age and number of ethics courses) are included as control variables in the first

step. The components of the TRA, attitudes and subjective norms, are entered in the second step, followed by the third step which adds perceived behavioral control as suggested by the TPB. The fourth step (step 4) includes moral obligation, which we term as the modified version of the TPB (MTPB). The final step (step 5) includes perceived prosecution risk, which we term as the extended version of the TPB (ETPB) (See Table 3).

Based on the TRA, in terms of step 2, attitudes and subjective norms explain a significant proportion of the variation in intentions to engage in music piracy (R-squared = .54) and software piracy (R-squared = .34). With the inclusion of perceived behavioral control in step 3, based on the TPB, this variable explains significant incremental variance in both intentions to engage in music piracy (R-squared change = .03, $p < .05$) and intentions to engage in software piracy (R-squared change = .08, $p < .05$), over and above attitudes and subjective norms in step 2, providing support for Ajzen's (1991) theory of planned behavior. In step 4 when moral obligation is introduced (based on the proposed MTPB), results show that moral obligation explains significantly more incremental variance in intentions to engage in music piracy (R-squared change = .05, $p < .05$) and intentions to engage in software piracy (R-squared change = .06, $p < .05$) than the other variables in the prior steps. Finally, in step 5 when perceived prosecution risk is introduced (based on the proposed ETPB), results show that perceived prosecution risk explains significantly more incremental variance in intentions to engage in music piracy (R-squared change = .07, $p < .05$) and intentions to engage in software piracy (R-squared change = .08, $p < .05$) than the other variables in the prior steps. Thus, in the final step, all of the independent variables (attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk) emerge significant, thereby supporting the study's research hypotheses.

We performed a further assessment of the coefficients of determination between the model predicting intentions to engage in software piracy compared to the model predicting intentions to engage in music piracy. It is revealed that the ETPB (TPB with the addition of moral obligation and perceived prosecution risk) makes a better overall prediction of music piracy than software piracy (R-squared = .69 versus .56). We note that, in this study, perceived prosecution risk has the largest coefficients in the final step when compared with the other variables, thus highlighting its salience in models predicting intentions to engage in software and music piracy. Thus, this study shows that attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk are significant predictors of behavioral intentions in this sample. Overall, all hypotheses (H1a and H1b, H2a and H2b, H3a and H3b, H4a and H4b, and H5a and H5b) were fully supported.[4]

Insert Table 3 about here

Concluding remarks

The principal objective of this paper is to investigate factors that influence students of a particular Caribbean university to engage in software and music piracy. It mainly focuses on factors that encourage such behavior. This study uses the theory of planned behavior (TPB), which has in the past been successfully used to study individuals' behavior. In particular, this work investigates the relationships between the independent variables (attitudes toward the

[4] Our sample shows an uneven split between genders among participants. This is considered the norm in many accounting classrooms in universities today, where the female to male ratio tends to favor females (Curtis, 2006). Sensitivity analysis is used to determine the influence of gender as an alternative explanation of the results. Table 2 shows that gender is only significantly related to software piracy. Our hierarchical results included gender as a control variable in step 1. We conducted separate tests by removing gender from the analysis. The tests show similar results, thus highlighting no significant impact.

behavior, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk) and the dependent variables (intentions to engage in software and music piracy).

The research findings support the constructed hypotheses pertaining to students' intentions to engage in software and music piracy. In particular, these findings suggest that attitudes, subjective norms, perceived behavioral control, moral obligation and perceived prosecution risk influence students' intentions to engage in software and music piracy. TPB is also shown to be a useful model to be used in explaining accounting students' intentions to engage in software and music piracy, thereby evidencing the significance of moral obligation in influencing ethical intentions (Beck and Ajzen, 1991; Alleyne and Phillips, 2011).

Furthermore, the variable, attitude, is found to be significant in the empirical models. This indicates that the study's participants hold favourable attitudes toward software and music piracy. This finding is especially important since past research has shown that individuals do not perceive software and music piracy to be unethical (Al-Rafee and Cronan, 2006). In addition, this research finds that significant others endorse the belief to pirate software and music (subjective norms) (Yang and Wang, 2015). This implies that the opinion of others matters most when pirating software and music. Moreover, the students perceive that it is easy to pirate software and music (hence, greater perceived behavioral control). This is because students generally believe that they would not be caught. Lastly, the results show that students have a low perceived prosecution risk, thus suggesting that they do not fear possible penalties for pirating software and music. Hence, we argue that there should be stiffer penalties for engaging in software and music piracy.

Overall, these results have practical significance for the accounting profession. Implicit in the findings that future professionals do not view unauthorized possession and distribution of digital media (e.g. music and software piracy) as unethical behavior, is the suggestion that this attitude could be a precursor of future ethical scandals surrounding accountants and digital media of any sort (e.g. illegal use/distribution of proprietary software for use in professional practice, unauthorized access to clients' digital records, invasion of client/competitor privacy, data theft and hacking). We argue that unethical behaviors that are considered acceptable by these aspiring accountants now are more likely to become the norm when they are fully qualified accountants in practice. Accounting students, who are fully aware of the illegality of software and music piracy, may tend to believe that they can violate laws, rules and accounting standards and get away without punishment. Culturally, emerging economies like those in the Caribbean do not have financial resources and institutional frameworks necessary to enforce copyright laws (Oksanen and Valimaki, 2006).

Given these results, some recommendations that can be made are that i) there should be training for students in the accounting on the ethics of software and music piracy; ii) teaching components involving ethics should be included in more courses; iii) a system can be implemented to reward students for ethical behavior and punishment for unethical behavior; and iv) students and society should be better informed as to the problems that are associated with software and music piracy as this would help to limit the support of significant others. This is because if society was informed more about the implications of pirating software and music (e.g. people losing their jobs or facing stiff penalties) this could reduce the practice.

Furthermore, the accounting profession has an important role to play in societies by maintaining public confidence and high ethical standards in the public's interest. Hence,

accounting students who are preparing to enter the accounting profession should be encouraged to place greater emphasis on raising the ethical standards. This can be accomplished through courses and workshops focused on solving ethical dilemmas.

This study has several limitations. Firstly, this research used a small sample of accounting students chosen from a purposive sample. Hence, future research should incorporate larger samples and utilize more probabilistic sampling techniques to generalize findings to the wider population. In addition, samples can be chosen from individuals in the wider community. Secondly, a self-administered questionnaire was used. The research design did not allow for the expression of feelings or emotions on the topic. Thus, future studies should consider using qualitative approaches such as focus groups and interviews. Thirdly, social desirability bias was not considered and this can benefit future research. Fourthly, other factors not included in our study could also contribute in motivating software and music piracy among students. Thus, future studies could seek to identify and incorporate factors such as Jones (1991) moral intensity into proposed models of software and music piracy. In addition, future work could look into various research designs such as experimental settings or role-playing to elicit more accurate answers from respondents. Finally, our sample was skewed given that females represented 72% of the sample. While we conducted sensitivity analysis and found no significant impact of gender on our reported results, the possibility exists that our findings may not compare favorably with the percentage of females in the original sample targeted to participate in the study as well as the population of students at the university. Nevertheless, further work is encouraged to explore the influence of gender on music and software piracy.

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Table 1: Characteristics of the sample

	FREQUENCY (N)	PERCENT (%)
GENDER:		
Male	67	28
Female	170	72
Total	**237**	**100**
	Mean	**Standard deviation**
Age	26.72 years	6.17 years
Number of ethics courses done	3.78	1.12

Table 2: Correlations among variables

	MEAN	SD	GEN	AGE	ETH	INT	ATT	SN	PBC	MO	PPR
Music piracy:											
Gender **(GEN)**	1.73	.44	(-)								
Age **(AGE)**	26.72	6.17	.06	(-)							
No. of ethics courses **(ETH)**	3.78	1.12	.08	.20**	(-)						
Intentions **(INT)**	5.68	1.77	-.09	-.35**	-.14	(.94)					
Attitudes **(ATT)**	5.37	1.31	-.18**	-.31**	-.14	.63**	(.81)				
Subjective norms **(SN)**	4.71	1.49	-.07	-.02	-.10*	.48**	.27**	(.80)			
Perceived behavioural control **(PBC)**	5.88	1.28	-.11	-.18**	-.07	.49**	.48**	.31**	(.78)		
Moral obligation **(MO)**	2.96	1.32	.13	.23**	.13	-.54**	-.39**	-.45**	-.18**	(.84)	
Perceived prosecution risk **(PPR)**	2.11	1.54	.02	.35**	.15*	-.70**	-.49**	-.41**	-.37**	.57**	(.76)
Software piracy:											
Gender **(GEN)**	1.73	.44	(-)								
Age **(AGE)**	26.72	6.17	.06	(-)							
No. of ethics courses **(ETH)**	3.78	1.12	.08	.20**	(-)						
Intentions **(INT)**	4.61	1.75	-.20**	-.08	-.05	(.89)					
Attitudes **(ATT)**	4.63	1.32	-.05	-.01	.07	.52**	(.83)				
Subjective norms **(SN)**	4.81	1.41	-.06	-.06	-.05	.47**	.39**	(.78)			
Perceived behavioural control **(PBC)**	4.17	1.81	-.21**	-.08	-.04	.53**	.37**	.33**	(.85)		
Moral obligation **(MO)**	3.60	1.74	.04	-.02	-.02	-.42**	-.28**	-.20**	-.25**	(.87)	
Perceived prosecution risk **(PPR)**	2.86	1.80	-16*	.03	.12	-.62**	-.39**	-.32**	-.36**	.56**	(.81)

NB: ** P < .01; SD = Standard deviation; Cronbach reliabilities are noted in parentheses on the diagonals. (-) = no Cronbach alphas are relevant. Gender = 1 – male and 2 =female; Age and number of ethics courses done were coded as continuous variables.

Table 3: Hierarchical regression analyses for intentions

	Music piracy				Software piracy			
	r	**b**	**R^2**	**ΔR^2**	**r**	**b**	**R^2**	**ΔR^2**
Step 1:								
Gender	-.09	-.13			-.20**	-.20**		
Age	-.35**	-.37**			-.08	-.09		
Number of ethics courses done	-.14	-.08	.17	.17	.05	-.02	.05	.05
Step 2: Theory of reasoned action								
Attitudes	.63**	.47**			.52**	.35**		
Subjective norms	.48**	.34**	.54	.37	.47**	.30**	.34	.29
Step 3: Theory of planned behaviour								
Attitudes	.63**	.38**			.52**	.25**		
Subjective norms	.48**	.31**			.47**	.24**		
Perceived behavioural control	.49**	.21**	.57	.03	.53**	.31**	.42	.08
Step 4: Moral obligation								
Attitudes	.63**	.32**			.52**	.21**		
Subjective norms	.48**	.20**			.47**	.23**		
Perceived behavioural control	.49**	.24**			.53**	.28**		
Moral obligation	-.54**	-.27**	.62	.05	-.42**	-.26**	.48	.06
Step 5: Perceived prosecution risk								
Attitudes	.63**	.24**			.52**	.14**		
Subjective norms	.48**	.17**			.47**	.20**		
Perceived behavioural control	.49**	.19**			.53**	.24**		
Moral obligation	-.54**	-.13*			-.42**	-.12*		
Perceived prosecution risk	-.70**	-.36**	.69	.07	-.62**	-.35**	.56	.08

NB: *P < 0.05, **P < 0.01; r = correlation coefficient; b = standardized regression coefficient; R^2 = R square; ΔR^2 = R squared change.

SECTION I – Demographic Information

1) Gender: Male ❒ Female ❒

2) What is your age? _____ years

3) Working experience _____years

4) Please indicate academic major:……

5) Indicate your subject area:

Accounting ❒ Management ❒ Other ❒ (Specify)…….

6) Number of courses done with an ethics component? …… courses

7) Do you consider yourself to be religious ? Yes ❒ No ❒

SECTION II – Software piracy (Use or download of unauthorised (pirated) software)

	Behavioural Intentions									
1	I intend to make unauthorized software copies in the future	**Extremely Improbable**	1	2	3	4	5	6	7	**Extremely probable**
2	I will try to make unauthorized software copies in the future	**Extremely Improbable**	1	2	3	4	5	6	7	**Extremely probable**
3	I will make an effort to make unauthorized software copies in the future	**Extremely Improbable**	1	2	3	4	5	6	7	**Extremely probable**
	Attitudes									
4	Overall, my attitude towards using unauthorized software copies is:	**Unfavorable**	1	2	3	4	5	6	7	**Favorable**
5	Overall, my attitude towards using unauthorized software copies is:	**Harmful**	1	2	3	4	5	6	7	**Beneficial**
6	Overall, my attitude towards using unauthorized software copies is:	**Foolish**	1	2	3	4	5	6	7	**Wise**
7	Overall, my attitude towards using unauthorized software copies is:	**Bad**	1	2	3	4	5	6	7	**Good**
	Subjective norms									
8	Most people who are important to me think I should not use unauthorized software copies	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
9	When considering using unauthorized software copies, I wish to do what people who are important to me want me to do	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
10	If I use unauthorized software copies, then most people who are important to me would:	**Disapprove**	1	2	3	4	5	6	7	**Not Care**
	Perceived behavioural control									
11	I have complete control of making unauthorized software copies	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
12	For me, to make unauthorized software copies is easy	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
13	If I want to, I could easily make unauthorized software copies	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
	Moral obligation									
14	I would not feel guilty if I use unauthorized software copies	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
15	Using unauthorized software copies goes against my principles	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
16	It would be morally wrong to use unauthorized software copies	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**

	Perceived prosecution risk									
17	If you have used unauthorized software copies, what is the probability that you will be caught for the infringement of copyright law?	**Very Low**	1	2	3	4	5	6	7	**Very High**
18	You would be arrested for infringement of copyright law if you have used unauthorized software copies	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**

SECTION III – Music piracy (Use or download of unauthorised (pirated) music on the internet)

	Behavioral Intentions									
1	I intend to engage in music piracy over the internet in the future	**Extremely Improbable**	1	2	3	4	5	6	7	**Extremely probable**
2	I will try to engage in music piracy over the internet in the future	**Extremely Improbable**	1	2	3	4	5	6	7	**Extremely probable**
3	I will make an effort to engage in music piracy over the internet in the future	**Extremely Improbable**	1	2	3	4	5	6	7	**Extremely probable**
	Attitudes									
4	Overall, my attitude towards engaging in music piracy over the internet is:	**Unfavorable**	1	2	3	4	5	6	7	**Favorable**
5	Overall, my attitude towards engaging in music piracy over the internet is:	**Harmful**	1	2	3	4	5	6	7	**Beneficial**
6	Overall, my attitude towards engaging in music piracy over the internet is:	**Foolish**	1	2	3	4	5	6	7	**Wise**
7	Overall, my attitude towards engaging in music piracy over the internet is:	**Bad**	1	2	3	4	5	6	7	**Good**
	Subjective norms									
8	Most people who are important to me think that I should not engage in music piracy over the internet	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
9	When considering to engage in music piracy over the internet, I wish to do what people who are important to me want me to do	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
10	If I engage in music piracy over the internet, then most people who are important to me would:	**Disapprove**	1	2	3	4	5	6	7	**Not care**
	Perceived behavioral control									
11	I have complete control of engaging in music piracy over the internet	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
12	For me, to engage in music piracy over the internet is easy	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
13	If I want to, I could easily engage in music piracy over the internet	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**

	Moral obligation									
14	I would not feel guilty if I engage in music piracy over the internet	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
15	Engaging in music piracy over the internet goes against my principles	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
16	It would be morally wrong to engage in music piracy over the internet	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**
	Perceived prosecution risk									
17	If you have engaged in music piracy over the internet, what is the probability that you will be caught for the infringement of copyright law?	**Very Low**	1	2	3	4	5	6	7	**Very High**
18	You would be arrested for infringement of copyright law if you engage in music piracy over the internet	**Strongly Disagree**	1	2	3	4	5	6	7	**Strongly Agree**